Replacing Air-Conditioning Units at ARCS Sites

I. Purpose:

This procedure describes jumpering the BARD lead/lag controller to disable operation of the air-conditioning units at ARCS sites in the Tropical Western Pacific locale.

II. Cautions and Hazards:

- It is possible to service one unit while the other is operational.
- Observe all precautions when working on electrical circuits. All certified air-conditioning repair technicians and RESET members must have the appropriate electrical training.

III. Requirements:

The installation of any new or on-site spare BARD air-conditioning unit must undergo the factory recommended startup process. Essentially, the unit must be powered on after installing but not operating. This allows the compressor heater element to vaporize any liquid refrigerant in the compressor. To disable operation, the BARD lead/lag controller must be jumpered to prevent the newly installed unit from being called into service. After about four hours in the powered-on state, the unit may be brought on line.

Note: Turning off the service disconnect on the unit or any other form of removing power from the unit will also remove power from the compressor heater element and is NOT a substitution for jumpering the controller. Power must be on and the lead/lag controller jumpered as described in this procedure for proper startup.

The air-conditioning unit requires a 240-v AC power source. Each unit has a dedicated circuit that can be switched off inside the breaker box (DP240) located on the right-hand side of the van entry. The power required for the control portion of the lead/lag controller is only 24 volts AC; however, be aware that 240 volts AC exists at the primary side of the lead/lag controller transformer. The lead/lag controller also has a dedicated circuit.

IV. Procedure:

A. Replacing Air-Conditioning Unit

1. Determine which unit will require replacement. Except for the U-Van, each van has two units labeled “Unit 1” and “Unit 2.”

2. Locate the lead/lag controller at the rear of the van. It is a tan wall-mounted enclosure with red BARD logo.
3. Detach the controller cover by removing the four screws on the sides. This will allow access to the controller circuitry.
4. Locate the timer relay on the left side of the controller. It is a small black brick with spade-type terminals (see Figure 1 below). The terminals used are numbered 1,2,3,6 and 7.

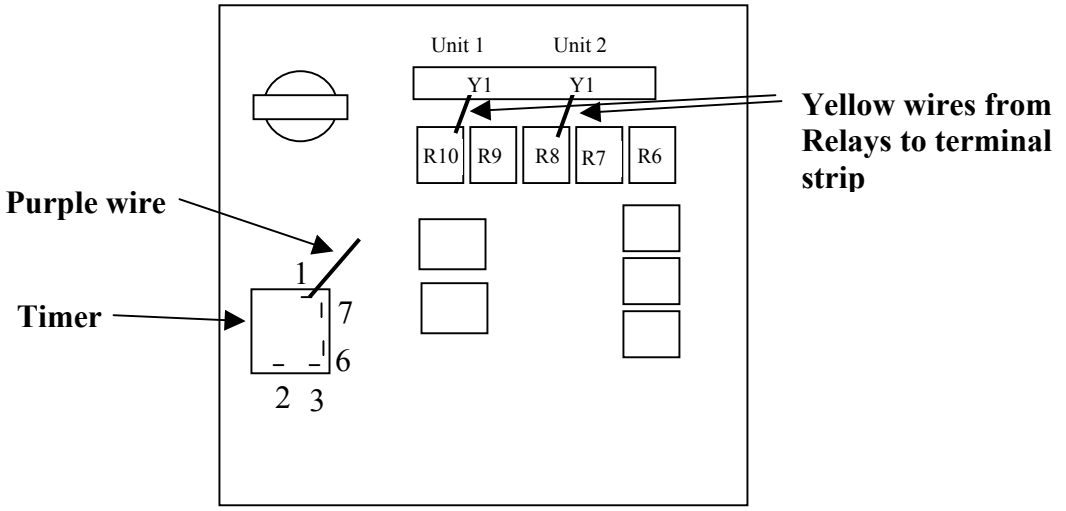

Figure 1: Timer relay

5. <u>Replacing Unit 1</u>:
   a) Remove the purple wire from terminal 1 of Timer and connect to terminal 2 of Timer. You may have to use a test clip. Do not remove any wires from terminal 2.
   b) Remove the yellow wire from R10 that connects to the Unit 1 terminal strip (Y1). This will prevent Unit 1 from being called into the second-stage cooling while waiting in the startup mode.
6. <u>Replacing Unit 2</u>:
   a) Remove the purple wire from terminal 1 of Timer and just leave it hanging. It does not need to be connected to anything.
   b) Remove the Yellow wire from R8 that goes to the terminal strip (Y1). This will prevent Unit 2 from being called into the second-stage cooling while waiting in the startup mode.

7. After replacing the unit and powering on, wait for a minimum of four hours before returning the unit to service. Return by replacing all wires in their original positions:
   a) Purple wire to terminal 1 on Timer.
   b) Yellow wire R10 to Y1 terminal strip Unit 1
   c) Yellow wire R8 to Y1 terminal strip Unit 2
8. Verify that newly replaced unit is functioning properly as primary or in the second-stage cooling and that it is actually blowing cool air.

V. References:

None.

VI. Attachments:

None.